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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

AUG 01 1996

SR-6J

MEMORANDUM

SUBJECT: **ACTION MEMORANDUM:** Funding for Engineering Evaluation/Cost Analysis at the Vulcan Louisville Smelting Company (aka Vacant Lot) Site in North Chicago, Illinois; CERCLIS ID # ILD 097 271 563.

FROM: John J. O'Grady
Remedial Project Manager
Remedial Response Section #4

TO: Gail Nabasny (SE-5J)
Environmental Protection Specialist
Emergency Support Section

PURPOSE

The purpose of this action is to provide funding for an Engineering Evaluation/Cost Analysis (EE/CA) at the Vulcan Louisville Smelting Company Site, aka the Vacant Lot, (the "Site") in North Chicago, Illinois, through the Superfund Technical Assistance Response Team (START) contract. The START contractor will assist the U.S. EPA Region 5 Superfund Division with item 5.b. of the START Statement of Work, dated September 7, 1994. Specifically, START will:

> "Provide technical and administrative support to EPA in preparing a draft EE/CA report which shall included the following sections: site characterization, identification of removal action objectives, identification of ARARs, identification and initial screening of removal action alternatives, analysis of removal action alternatives, comparative analysis and selection of the removal action. While the Contractor will analyze the alternative removal actions, finals decisions, determinations and judgements will be made by EPA."

BACKGROUND AND CURRENT STATUS

The site that the U.S. EPA is focusing on is the Vacant Lot adjacent to the Fansteel property, in North Chicago, Illinois. The site comprises approximately 1.8 acres, and is bordered to the south by Martin Luther King Jr. Drive, to the west by Commonwealth Avenue, to the north by the Elgin, Joliet, and Eastern Railroad Tracks, and to the east by the Fansteel property. The U.S. EPA Region 5 is still in the site assessment phase and is handling this site under the Superfund Accelerated Cleanup Model or "SACM" program.

ESTIMATED PROJECT COST AND SCHEDULE

The Remedial Project Manager, functioning as the Work Assignment Manager, has reviewed the estimated total costs for the EE/CA of $200,000, and considers them reasonable for the work to be performed. The project period ends on September 30, 1997.

RECOMMENDATIONS

This request has been planned and coordinated with the appropriate Offices. Funds in the amount of $180,000 have been made available on the fourth quarter FY 96 Superfund Comprehensive Accomplishments Plan (SCAP). These funds will be added to those previously appropriated for additional sampling and analysis at this site, to fund the EE/CA at the $200,000 level. Mr. Joe Dufficy has already approved the use of these funds for an EE/CA at the Site. I recommend that these funds be authorized for the Vulcan Louisville Smelting Company (aka Vacant Lot) Site in North Chicago, Illinois.

APPROVAL FORM TO INITIATE FUNDING PACKAGE

PART A - COMPLETED BY RPM/WAM/FUND HOLDERS

SITE FUNDED

1. Site/Project Name: VACANT LOT (aka VULCAN LOUISVILLE SMELTING COMPANY)
2. WasteLAN ID #/State: ILD-097-271-563
3. Operable Unit (OU)#: N/A
4. Activity/Event Code: ENG. EVAL./COST ANALYSIS (EE/CA)
5. FY/Quarter: 1996/FOURTH QUARTER
6. Actual Amount: $180,000
7. Budget Source Code: 5
8. Funding Vehicle:
9. **What Event/Activity does this project support?**

TO UTILIZE START CONTRACT TO PERFORM AN ENGINEERING EVALUATION/COST ANALYSIS AT THE VACANT LOT SITE (AKA VULCAN LOUISVILLE SMELTING COMPANY) LOCATED IN NORTH CHICAGO, ILLINOIS.

PART B - COMPLETED BY RPM/WAM/FUND HOLDERS AND BUDGET OFFICER/OSF

We concur that this information is complete and accurate:

8/1/96 — RPM/WAM/Fund Holder

8/1/96 — Budget Officer/OSF

(EPA:P:\USER\RWEBB\FUNDPACK.FRM:02/13/95)

SRX 96 T TFA 5AFOJ 2505 $180,000 05MMEECO

THE $180,000 WILL BE ADDED TO THE $20,000 CURRENTLY APPROPRIATED FOR SAMPLING AND ANALYSIS AT THE VACANT LOT TO PERFORM THIS EE/CA. TOTAL COST PROJECTED AT $200,000.

7/31/96

United States

Environmental Protection Agency

Washington, DC 20460

Financial and Accounting Data Continuation Sheet

Continuation of Form Number:	Date of Primary Form:	Social Security Number:	DCN:

Line	DCII (Max 6)	Budget/FYs (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 6)	Object Class (Max 4)
1	5RX	94	T	5AFCJ	TFA1	2525
2						
3						

SFO: 22 (Max 2)

	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1	[illegible]	00	CSMNEEN	
2				
3				

Line	DCII (Max 6)	Budget/FYs (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 6)	Object Class (Max 4)
4						
5						
6						

	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
4				
5				
6				

Line	DCII (Max 6)	Budget/FYs (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 6)	Object Class (Max 4)
7						
8						
9						

	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
7				
8				
9				

Line	DCII (Max 6)	Budget/FYs (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 6)	Object Class (Max 4)
10						
11						
12						

	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
10				
11				
12				

Line	DCII (Max 6)	Budget/FYs (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 6)	Object Class (Max 4)
13						
14						
15						

	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
13				
14				
15				

United States of America by (Signature)	Typed Name and Title of Contracting Officer

U S GPO 1994 523 367 80312

All monitoring data generated during the performance of the removal support TDD shall be analyzed and interpreted on an emergency, quick turnaround basis with recommendations for immediate action presented to EPA. All removal support work shall take into account appropriate Federal, state and local regulations regarding, in particular, the collection, storage, and transportation of hazardous substances. As requested, reports (i.e. treatability studies, EE/CAs), shall be presented to appropriate officials, in writing, recommending response options.

3. Removal Support (PRPs)

During the performance of a PRP funded removal action, the Contractor shall support EPA enforcement efforts as defined in Section 2 above. EPA will review contractor recommendations and make the final decisions, determinations and judgments.

4. Oil Spill Response

The Contractor shall support EPA in responding to the release or threat of release of oil or petroleum products by providing the following support:

a. Responding to and investigating oil spill releases including sampling, analysis and validation of data collected during these efforts.

b. Providing on-site information gathering for EPA.

c. Providing technical support to EPA, state and local governments, and overseeing spill responses undertaken by potentially responsible parties.

d. Preparing written reports documenting spill and response activities including photographic film and video documentation.

e. Supporting EPA with enforcement related activities as described in Part IV. TECHNICAL REQUIREMENTS, Section D. TECHNICAL SUPPORT ACTIVITIES, Item 15. Enforcement Activities, of this SOW.

f. Providing expert testimony during court actions in accordance with the clause entitled "EXPERT TESTIMONY."

g. Reviewing Spill Prevention Controls and Countermeasure (SPCC) Inspections and Facility Response Plans and providing comments to EPA.

h. Provide technical and administrative support to EPA for planning and participating in scheduled and unscheduled drills and simulations at oil storage facilities.

5. Engineering Evaluations and Cost Analyses

Engineering Evaluations and Costs Analyses (EE/CAs) are required for non-time critical removal actions. The purpose of the EE/CA is to allow for public participation in the removal decision process when time allows, and to give consideration to alternatives to land disposal. The goals of an EE/CA are to identify the objectives of the removal action and to analyze various alternatives that may be used to satisfy these objectives for cost

effectiveness and implementability. The EE/CA is performed after EPA issues the EE/CA Approval Memorandum. Tasks that the Contractor shall be required to perform include the following:

a. Provide technical and administrative support to EPA in the preparation of a draft EE/CA approval memorandum. All final EE/CA approval memoranda will be prepared by EPA.

b. Provide technical and administrative support to EPA in preparing a draft EE/CA report which shall include the following sections: site characterization, identification of removal action objectives, identification of ARARs, identification and initial screening of removal action alternatives, analysis of removal action alternatives, comparative analysis and selection of the removal action. While the Contractor will analyze the alternative removal actions, final decisions, determinations and judgements will be made by EPA.

c. Provide technical and administrative support to EPA for the preparation of a summary of the responses by interested parties.

6. Regional Response Center Support

The Contractor shall support the Regional Response Center (RRC) and Emergency Response Notification System (ERNS). This shall include collecting appropriate technical information, gathering follow-up information on incident notifications, and providing information on significant events for any system used to inform local authorities.

7. Minor Containment

The Contractor shall perform minor containment or stabilization efforts at the direction of the EPA OSC, through technical instructions, not to exceed a total of 40 hours per TDD. Such effort might include: deploying sorbent booms in waterbodies, building small dams to interrupt the flow of contaminants, and emergency pumping. The minor containment effort must be done as a result of the EPA's CERCLA 104(b) activities (pre-removal and investigatory activities) or NCP 300.305 (Phase II activities) for Oil Spill response.

8. Site Documentation

The Contractor shall provide technical and administrative support to EPA in the preparation of draft OSC "after-action" or pollution reports whenever the Contractor has participated in a response to an emergency in conformance with OSWER Directive 9360.3-01-Superfund Removal Procedures. The primary emphasis of such reports shall be to provide documentation of the response, which would be used as a basis for technology transfer and response lessons learned. The Contractor shall base the "after-action" or pollution reports upon daily logs or notes taken by contractor personnel or notes or other documentation compiled by the EPA OSC or members of his/her staff.

In support of the Administrative Record for removals the Contractor shall provide, within the response time specified in each TDD, the technical and administrative services, equipment and materials to support EPA in its response documentation needs.

SCOPE OF WORK FOR ENGINEERING EVALUATION/COST ANALYSIS AT THE VACANT LOT SITE NORTH CHICAGO, ILLINOIS

PURPOSE:

The purpose of this Scope of Work (SOW) is to set forth requirements for the preparation of an Engineering Evaluation/Cost Analysis (EE/CA) which shall evaluate alternatives for conducting a removal action at the Vacant Lot (aka the Vulcan Louisville Smelting Company) Site, CERCLIS ID # ILD 097 271 563. The Engineering Evaluation/Cost Analysis (EE/CA) shall be conducted, at a minimum, consistent with U.S. EPA guidance entitled, "Guidance on Conducting Non-Time critical Removal Actions Under CERCLA," EPA/540-R-93-057, Publication 9360.32, PB 93-963402, dated August 1993 (Guidance). STARTshall furnish all personnel, materials, and services necessary for, or incidental to, performing the EE/CA at the Vacant Lot Site, except as otherwise specified herein.

SCOPE:

The tasks to be completed as part of this EE/CA are:

Task 1. EE/CA Support Sampling Plan
Task 2. EE/CA Support Sampling
Task 3. Data Report
Task 4. EE/CA

TASK 1: EE/CA SUPPORT SAMPLING PLAN

Within 45 calendar days of the effective date of the award, the Superfund Technical Assistance Response Team (START) shall submit a Sampling Plan that addresses all data acquisition activities. The objective of this EE/CA support sampling is to further determine the extent of contamination at the Site beyond that already identified by the U.S. EPA Region 5, Illinois EPA, the Site Investigation data, the Expanded Site Investigation data, the Great Lakes Naval Training Center, the Northern Trust Bank, which holds the property in trust, the City of North Chicago, and other entities as supplied by U.S. EPA Region 5 or identified during the course of the investigation. The plan shall contain a description of equipment specifications, required analyses, sample types, and sample locations and frequency. The plan shall address specific hydrologic, hydrogeologic, and air transport characterization methods including, but not limited to, geologic mapping, geophysics, field screening, drilling and well installation, flow determination, and soil/water/sediment/sludge sampling to determine extent of contamination.

START shall identify the data requirements of specific remedial technologies that may be necessary to evaluate removal activities in the EE/CA. START shall provide a schedule stating when events will take place and when deliverables will be submitted. The EE/CA Support Sampling Plan shall include the following information:

A. Site Background

A brief summary of the Site location, general Site physiography, hydrology and geology shall be included. A description of the data already available shall be included which will highlight the areas of known contamination and the levels detected. Tables shall be included to display the minimum and maximum levels of detected contaminants across the Site.

B. Data Gap Description

START shall make an analysis of the currently available data to determine the areas of the Site which require additional data in order to define the extent of contamination for purposes of implementing a removal action. A description of the number, types, and locations of additional samples to be collected shall be included in this section of the sampling plan.

Descriptions of the following activities shall also be included:

I. Waste Characterization
START shall include a program for characterizing the waste materials at the Site. This shall include an analysis of current information/data on past disposal practices at the Site.

ii. Hydrogeologic Investigation
The plan shall include the degree of hazard, the mobility of pollutants, discharges/recharge areas, regional and local flow direction and quality, and local uses of groundwater. The plan shall also develop a strategy for determining horizontal and vertical distribution of contaminants. Upgradient samples shall be included in the plan.

iii. Soils and Sediments Investigation
STARTshall include a program to determine the extent of contamination of surface and subsurface soils at the Site. The plan shall also determine the extent, including depth, of contamination of sediments in Pettibone Creek and its tributaries. The plan shall include a determination of levels of contamination from areas upstream of the Site. Samples of any leachate from the areas described as fill areas shall also be collected.

iv. Surface Water Investigation
STARTshall include a program to determine the areas of surface water contamination in Pettibone Creek and its tributaries.

v. Air Investigation
STARTshall include a program to determine the extent of atmospheric contamination from the various source areas at the Site. The program shall address the tendency of the substances identified through the waste characterization to enter the atmosphere, local wind patterns, and the degree of hazard.

C. Sampling Procedures

STARTshall include a description of the depths of sampling, parameters to be analyzed, equipment to be used, decontamination procedures to be followed, sample quality assurance, data quality objectives and sample management procedures to be utilized in the field.

D. Health and Safety Plan

STARTshall prepare a Site safety plan which is designed to protect on-site personnel, area residents and nearby workers from physical, chemical and all other hazards posed by this sampling event. The safety plan shall develop the performance levels and criteria necessary to address the following areas:

- General requirements
- Personnel
- Levels of protection
- Safe work practices and safe guards
- Medical surveillance
- Personal and environmental air monitoring
- Personal hygiene
- Decontamination - personal and equipment
- Site work zones
- Contaminant control
- Contingency and emergency planning
- Logs, reports and record keeping

The safety plan shall, at a minimum, follow U.S. EPA guidance document Standard Operating Safety Guides (Publication 9285.1-03, PB92-963414, June 1992), and all OSHA requirements as outlined in 29 CFR 1910.

E. Schedule

STARTshall include a schedule which identifies timing for initiation and completion of all tasks to be completed as part of this EE/CA Support Sampling Plan.

TASK 2: EE/CA SUPPORT SAMPLING

STARTshall conduct the EE/CA Support Sampling activity according to the approved Sampling Plan and schedule. STARTshall coordinate activities with U.S. EPA's Remedial Project Manager (RPM). STARTshall provide the RPM with all laboratory data.

TASK 3: DATA REPORT

According to the U.S. EPA-approved schedule in the EE/CA Support Sampling Plan, a report, in table-form, shall be provided by START to U.S. EPA. This report shall summarize the sampling results from both the EE/CA Support Sampling and from previous sampling events. If requested, copies of all raw data shall be provided by START to U.S. EPA for a validation check.

TASK 4: ENGINEERING EVALUATION/COST ANALYSIS REPORT (EE/CA)

The EE/CA shall be completed in accordance with the following requirements:

The Vacant Lot Site
(aka Vulcan Louisville Smelting Company)
CERCLIS ID # ILD 097 271 563

Engineering Evaluation/Cost Analysis

1 Executive Summary

2 Site Characterization

- 2.1 Site Description and Background
  - 2.1.1 Site Location and Physical Setting
  - 2.1.2 Geology/Hydrology/Hydraulics
  - 2.1.3 Surrounding Land Use and Populations
  - 2.1.4 Sensitive Ecosystems
  - 2.1.5 Meteorology
- 2.2 Previous Removal Actions
- 2.3 Source, Nature, and Extent of Contamination
- 2.4 Analytical Data
- 2.5 Streamlined Risk Evaluation (to be provided by U.S. EPA)

3 Identification of Removal Action Objectives

- 3.1 Determination of Removal Scope
- 3.2 Determination of Removal Schedule
- 3.3 Identification of and Compliance with ARARs
- 3.4 Planned Remedial Activities

4 Identification and Analysis of Removal Action Alternatives

5 Detailed Analysis of Alternatives

- 5.1 Effectiveness
  - 5.1.1 Overall Protection of Public Health and the Environment
  - 5.1.2 Compliance with ARARs and Other Criteria, Advisories, and Guidance
  - 5.1.3 Long-Term Effectiveness and Permanence
  - 5.1.4 Reduction of Toxicity, Mobility, or Volume Through Treatment
  - 5.1.5 Short-Term Effectiveness
- 5.2 Implementability
  - 5.2.1 Technical Feasibility
  - 5.2.2 Administrative Feasibility
  - 5.2.3 Availability of Services and Materials
  - 5.2.4 State and Community Acceptance
- 5.3 Cost
  - 5.3.1 Direct Capital Costs
  - 5.3.2 Indirect Capital Costs
  - 5.3.3 Long-Term Operation and Maintenance

6 Comparative Analysis of Removal Action Alternatives

7 Schedule for EE/CA Submission

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1 Executive Summary

The Executive Summary shall provide a general overview of the contents of the EE/CA. It shall contain a brief discussion of the site and the current and/or potential threat posed by conditions at the site. It shall also identify the scope and objectives of the removal action and the alternatives.

2 Site Characterization

The EE/CA shall summarize available data on the physical, demographic, and other characteristics of the Site and the surrounding areas. Specific topics which shall be addressed in the site characterization are detailed below. The site characterization shall concentrate on those characteristics necessary to evaluate and select an appropriate remedy.

2.1 Site Description and Background

The site description includes current and historical information. The following types of information shall be included, where available and as appropriate, to the site-specific conditions and the scope of the removal action.

- 2.1.1 Site Location and Physical Setting
- 2.1.2 Present and Past Facility Operations
- 2.1.3 Geology/Hydrology/Hydraulics
- 2.1.4 Surrounding Land Use and Populations
- 2.1.5 Sensitive Ecosystems
- 2.1.6 Meteorology

2.2 Previous Removal Actions

The site characterization section shall also describe any previous removal actions at the site. Previous information, if relevant, shall be organized as follows:

* The scope and objectives of the previous removal action
* The amount of time spent on the previous removal action
* The nature and extent of hazardous substances, pollutants, or contaminants treated or controlled during the previous removal action
* The technologies used and/or treatment levels used for the previous removal action.

2.3 Source, Nature and Extent of Contamination

This section shall summarize the available site characterization data for the Vacant Lot Site, including the location(s) of the hazardous substance(s), pollutant(s), or contaminant(s); the quantity, volume, size or magnitude of the contamination; and the physical and chemical attributes of the hazardous pollutant(s) or contaminant(s).

2.4 Analytical Data

This section shall present the available data, including, but not limited to, all data collected to date by the U.S. EPA Region 5, Illinois EPA, the City of North Chicago, the Great Lakes Naval Training Center, the Northern Trust Bank, and others as identified by the U.S. EPA Region 5 RPM. Studies which have been undertaken and are known to the U.S. EPA Region 5 RPM as of July 31, 1996, are:

1. Site Assessment Report for the North Chicago Site, North Chicago, Lake County, Illinois, dated February 24, 1995; prepared for the U.S. EPA Emergency and Enforcement Response Branch by Ecology and Environment, Inc.

2. Memorandum Dated December 15, 1994, from Richard E. Gillig, Chief , SPS, RPB, DHAC to Louise Fabinski, ATSDR Senior Representative for U.S. EPA Region 5, Providing a Health Consultation on the Vacant Lot, Lake County, North Chicago, Illinois.

3. Memorandum dated September 6, 1994, from Judy J. Triller, Illinois EPA to Donald Bruce, U.S. EPA Region 5 on the Vacant Lot; Summary of analytical data obtained from site samples as well as a site map.

4. October 14, 1994, Environmental Laboratories, Inc. Report to Barbara Schmitt, Waste Management - Pheasant Run Landfill, Bristol, Wisconsin; Samples of Soil Exposed to Storm Water/Lake County Stormwater Management Pettibone Creek, 22nd Street & Commonwealth Avenue, North Chicago, Illinois; Samples Collected on September 28, 1994, Received by Laboratory on September 29, 1994.

5. American Environmental Analytical, Inc. Laboratory Report for the City of North Chicago, Illinois (Bruce Burris, City Engineer), for the North Chicago/Pettibone Creek Project, Samples Collected and Received by Laboratory on August 5, 1994, Results Reported on August 12, 1994.

6. June 1994 Report on the Groundwater Investigation Conducted in November 1993 on the Stack Property, North Chicago, Illinois, Prepared by Geraghty & Miller, Inc., for The Northern Trust Company, Chicago, Illinois.

7. Soil Sampling Survey Dated June 1992, Prepared by Aires Environmental Services, Limited for Tenney Pavoni Associates, Inc. for the Bike Path in North Chicago, Illinois.

8. June 7, 1991, Phase II Report, Environmental Assessment, North Chicago Bike Path, Prepared by Envirodyne Engineers, Inc. for Lake County Division of Transportation.

9. February 1991, Phase I Report, Environmental Site Assessment, North Chicago Bike Path, Prepared by Envirodyne Engineers, Inc. for Lake County Division of Transportation.

10. CERCLA Screening Site Inspection Analytical Results, November 1991, Prepared by the Illinois Environmental Protection Agency, Springfield, Illinois.

11. November 13, 1989, Revised Final Report for the Sampling and Analytical Investigations at the Stack Property, 22nd Street, North Chicago, Illinois, Prepared by MAECORP Incorporated, Chicago, Illinois, for Karaganis and White, Ltd.

12. March 27, 1989, Final Report of the Sampling and Analytical Investigations at the Stack Property 22nd Street, North Chicago, Illinois, Prepared by MAECORP Incorporated for Karaganis and White, Ltd.

13. February 10, 1989, Interim Report for the Stack Property, Prepared by MAECORP Incorporated for Karaganis and White, Ltd.

14. October 9, 1988, Water Sampling Results from the 22nd Street Property, North Chicago, Illinois, Prepared by MAECORP Incorporated for the Northern Trust Company, Chicago, Illinois.

15. July 7, 1988, Final Report Submission on the North Chicago Ground Fire Project, Prepared by National Environmental Testing, Inc. for the Illinois Environmental Protection Agency.

2.5 Streamlined Risk Evaluation

This section will be completed by the U.S. EPA Region 5 Office and supplied to START for inclusion in the EE/CA.

3 Identification of Removal Action Objectives

The EE/CA shall develop removal action objectives, taking into consideration the following factors:

* Prevention or abatement of actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants, or contaminants;

* Prevention or abatement of actual or potential contamination of drinking water supplies or sensitive ecosystems;

* Stabilization or elimination of hazardous substances in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release;

* Treatment or elimination of high levels of hazardous substances, pollutants, or contaminants in soils or sediments largely at or near the surface that may migrate;

* Elimination of threat of fire or explosion;

* Mitigation or abatement of other situations or factors that may pose threats to public health, welfare, or the environment.

3.1 Determination of Removal Scope

The EE/CA shall define the broad scope and specific objectives of the removal action and address the protectiveness of the removal action. The EE/CA shall discuss how the goals of the removal action are consistent with any potential long-term remediation.

3.2 Determination of Removal Schedule

The general schedule for removal activities shall be developed, including both the start and completion time for the removal action.

4 Identification and Analysis of Removal Action Alternatives

Based on the analysis of the nature and extent of contamination and on the cleanup objectives developed in the previous section, a limited number of alternatives appropriate for addressing the removal action objectives shall be identified and assessed. Whenever practicable, the alternatives shall also consider the CERCLA preference for treatment over conventional containment or land disposal approaches.

Based on the available information, only the most qualified technologies that apply to the media or source of contamination shall be discussed in the EE/CA. The use of presumptive remedy guidance may also provide an immediate focus to the identification and analysis of alternatives. Presumptive remedies involve the use of remedial technologies that have been consistently selected at similar sites or for similar contamination.

A limited number of alternatives, including any identified presumptive remedies, shall be selected for detailed analysis. Each of the alternatives shall be described with enough detail so that the entire treatment process can be understood. Technologies that may apply to the media or source of contamination shall be listed into the EE/CA. In some cases, it may be more appropriate to consider only a category of technologies. For example, on-site incineration would be considered a technology category that may include rotary kiln, fluidized bed, etc.

Please note that part of the analysis (not identification) of alternatives should also include compatability of the alternative with the specific land reuse(s) for the Site, identified by the City of North Chicago or other interested parties, to the extent practicable. The preliminary list of alternatives to address the Vacant Lot Site shall consist of one or more alternatives from each of the following generic removal alternative categories.

1. Pettibone Creek Sediment Remediation, Including Limited Dredging
2. On-site Soil Remediation
3. Top Soil Layer Removed Up to 12 Inches Based Upon Action Levels
4. Contaminated Soil Hot Spot Removals
5. Removal of Waste Pile(s)
6. Groundwater Remediation
7. Capping All or Portions of the Site
8. A Possible Combination of the Alternatives Listed Above

5 Detailed Analysis of Alternatives

Defined alternatives are evaluated against the short- and long-term aspects of three broad criteria: effectiveness, implementability, and cost.

5.1 Effectiveness

The effectiveness of an alternative refers to its ability to meet the objective regarding the scope of the removal action. The "Effectiveness" discussion for each alternative shall evaluate the degree to which the technology would mitigate threats to public health and the environment. Criteria to be considered include:

5.1.1 Overall Protection of Public Health and the Environment

How well each alternative protects public health and the environment shall be discussed in a consistent manner. Assessments conducted under other evaluation criteria, including long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs shall be included in the discussion. Any unacceptable short-term impacts shall be identified. The discussion shall focus on how each alternative achieves adequate protection and describe how the alternative will reduce, control, or eliminate risks at the site through the use of treatment, engineering, or institutional controls.

5.1.2 Compliance with ARARs and Other Criteria, Advisories, and Guidance

The detailed analysis shall summarize which requirements are applicable or relevant and appropriate to an alternative and describe how the alternative meets those requirements. A summary table may be employed to list potential ARARs. In addition to ARARs, U.S. EPA may identify other Federal or State advisories, criteria, or guidance to be considered (TBC) for a particular release. TBCs are not required by the NCP; rather, TBCs are meant to complement the use of ARARs.

5.1.3 Long-Term Effectiveness and Permanence

This evaluation assesses the extent and effectiveness of the controls that may be required to manage risk posed by treatment residuals and/or untreated wastes at the site. The following components shall be considered for each alternative: magnitude of risk, and, adequacy and reliability of controls.

5.1.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

U.S. EPA's policy of preference for treatment requires evaluation based upon the following subfactors for a particular alternative:

* The treatment process(es) employed and the material(s) it will treat
* The amount of the hazardous materials to be destroyed or treated
* The degree of reduction expected in toxicity, mobility, or volume
* The degree to which treatment will be irreversible
* The type and quantity of residuals that will remain after treatment
* Whether the alternative will satisfy the preference for treatment

5.1.5 Short-Term Effectiveness

The short-term effectiveness criterion addresses the effects of the alternative during implementation before the removal objectives have been met. Alternatives shall also be evaluated with respect to their effects on human health and the environment following implementation. The following factors shall be addressed as appropriate for each alternative: Protection of the Community; Protection of the Workers; Environmental Impacts; and Time Until Response Objectives are Achieved.

5.2 Implementability

This section is an assessment of the implementability of each alternative in terms of the technical and administrative feasibility and the availability of the goods and services necessary for each alternative's full execution. The following factors shall be considered under this criterion.

5.2.1 Technical Feasibility

The degree of difficulty in constructing and operating the technology; the reliability of the technology, the availability of necessary services and materials; the scheduling aspects of implementing the alternatives during and after implementation; the potential impacts on the local community during construction operation; and the environmental conditions with respect to set-up and construction and operation shall be described. Potential future remedial actions shall also be discussed. The ability to monitor the effectiveness of the alternatives may also be described.

5.2.2 Administrative Feasibility

The administrative feasibility factor evaluates those activities needed to coordinate with other offices and agencies. The administrative feasibility of each alternative shall be evaluated, including the need for off-site permits, adherence to applicable nonenvironmental laws, and concerns of other regulatory agencies. Factors that shall be considered include, but are not limited to, the following: statutory limits, permits and waivers.

5.2.3 Availability of Services and Materials

The EE/CA must determine if off-site treatment, storage, and disposal capacity, equipment, personnel, services and materials, and other resources necessary to implement an alternative shall be available in time to maintain the removal schedule.

5.2.4 State and Community Acceptance

U.S. EPA shall consider and address State and community acceptance of an alternative when making a recommendation and in the final selection of the alternative in the Action Memorandum.

5.3 Cost

Each alternative shall be evaluated to determine its projected costs. The evaluation should compare each alternative's capital and operation and maintenance costs. The present worth of alternatives should be calculated.

5.3.1 Direct Capital Costs

Costs for construction, materials, land, transportation, analysis of samples, treatment shall be presented.

5.3.2 Indirect Capital Costs

Cost for design, legal fees, permits shall be presented.

5.3.3 Long-Term Operation and Maintenance Costs

Costs for maintenance and long-term monitoring shall be presented.

6 Comparative Analysis of Removal Action Alternatives

Once removal action alternatives have been described and individually assessed against the evaluation criteria described in Section 5, above, a comparative analysis shall be conducted to evaluate the relative performance of each alternative in relation to each of the criteria. The purpose of the analysis shall be to identify advantages and disadvantages of each alternative relative to one another so that key trade offs that would affect the remedy selection can be identified.

7 Schedule for EE/CA Submission

Within one week of the effective date of the award, START shall present at a meeting or during a telephone conference call the alternatives to undergo a more detailed analysis. A draft EE/CA shall be submitted to USEPA within [60 days] of the effective date of the award. The amended EE/CA shall be submitted to USEPA within 14 calendar days of the receipt of USEPA's comments on the draft EE/CA.

08/01/96

Independent Government Cost Estimate

Contractor: Ecology & Environment, Inc. Contract: START
Project Title: Vulcan Louiseville Smelting Co.
Location: Nornth Chicago, IL

	Est. Hours	Rate	Direct Cost	IGCE Minimum	IGCE Maximum
Total LOE	3,400	$50.00	$170,000		
Total Direct Labor			$170,000	$0	$0
Subcontracts			$30,000		
Travel			$0	$0	$0
Fringes [Indirects Costs Included in Rate Above]					
Indirect					
Subtotal			$200,000	$0	$0
G & A					
Base Fee [Fees included in Rate Above]					
Award Fee					
Estimate of LOE & Dollars	3400		$200,000	$0	$0
Previously Approved LOE & Dollars	0		$0	$0	$0
Total LOE & Dollar Estimate:	3,400		$200,000	$0	$0
New Work LOE Minimum:	0				
New Work LOE Maximum:	0				

WAM:
PO / IGCE Coordinator Concurrence:

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08/01/96

LOE Contractor: 0 Site Name: **Vulcan Louiseville Smelting Co.**

WBS Number	Task	LOE Total	P4	P3	P2	P1	C	MIN LOE	MAX LOE	Direct Labor ($)	Travel	Subcontract Costs	ODC's	Indirects & Fees	Task Grand Total
1.0	EE/CA Support Sampling Plan	100	0	100	0	0	0	0	0	$0	$0	$0	$0		$0
2.0	EE/CA Support Sampling	350	0	350	0	0	0	0	0	$0	$0	$30,000	$0	$0	$30,000
3.0	Data Report	150	0	150	0	0	0	0	0	$0	$0	$0	$0	$0	$0
4.0	EE/CA	2800	0	2800	0	0	0	0	0	$0	$0	$0	$0	$0	$0
5.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
6.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
7.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
8.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
9.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
10.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
11.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
12.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
13.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
14.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
15.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
16.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
17.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
18.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
19.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
20.0		0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0